UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/533,022	03/22/2000	Wilf LeBlanc	36791/CAG/B600	8407

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EXAMINER
HAROLD, JEFFEREY F

ART UNIT	PAPER NUMBER
2644	

DATE MAILED: 03/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

		Application No.	Applicant(s)
Office Action Summary		09/533,022	LEBLANC ET AL.
		Examiner	Art Unit
		Jefferey F Harold	2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _3/22/2000_.
2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1,4,6-9,11-32 and 35-136_ is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) _See Continuation Sheet_ is/are rejected.
7) ☒ Claim(s) _See Continuation Sheet_ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☒ All   b) ☐ Some * c) ☐ None of:
      1. ☒ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____.
      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims rejected are 1,4,6,8,9,11-13,15,19-21,26-28,31,32,35,37,39-44,46,47,52-55,59 77,79-87,89,93-96,99,101-105,107-125 and 130-133.
Continuation of Disposition of Claims: Claims objected to are 7,14,16-18,22-25,28-31,36,38,42,45-51,55-58,78,88,90-92,97,98,100,106,126-129 and 134-136.

DETAILED ACTION

Information Disclosure Statement

1.   The references listed in the Information Disclosure Statement submitted on

September 11, 2000; July 30, 2001; August 30, 2002; and February 6, 2004 have been

considered by the examiner (see attached PTO-1449).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.   ***Claims 1, 4, 6, 8, 9, 11-13, 15, 19-21, 26-28, 31, 32, 35, 37, 39-44, 46, 47, 52-***

55, 59-77, 79-87, 89, 93-96, 99, 101-105, 107-125, and 130-133 are rejected under 35

U.S.C. 102(e) as being anticipated by Ferrell et al. (United States Patent 6,198,819),

hereinafter referenced as Ferrell.

Regarding **claim 1**, Ferrell discloses an echo canceller having improved non-

linear processor. In addition, Ferrell discloses a method of conditioning a composite

signal, the composite signal being formed by introducing at least a portion of a first

signal into a second signal, comprising: estimating a characteristic of at least one of the

first and composite signals; and selectively conditioning the composite signal, the

selection of whether to condition the composite signal being based on the estimated

characteristic, as disclosed at column 4, line 16 through column 5, line15 and exhibited

in figure 2.

Regarding **claim 4**, Ferrell discloses everything claimed as applied above (see

claim 1), in addition, Ferrell discloses wherein the conditioning of the composite signal

comprises adaptively filtering the first signal, and recovering the second signal by

subtracting the filtered first signal from the composite signal, as disclosed at column 4,

line 16 through column 5, line15 and exhibited in figure 2.

Regarding **claim 6**, Ferrell discloses everything claimed as applied above (see

claim 4), in addition, Ferrell discloses wherein the characteristic estimation comprises

estimating a return loss between the composite signal and the first signal, estimating a

return loss enhancement, the return loss enhancement comprising a reduction in power

of the composite signal due to the signal conditioning in the absence of the second

signal, and wherein the conditioning of the composite signal further comprises adjusting

the filter adaptation as a function of at least one of the estimated return loss and the

estimated return loss enhancement, as disclosed at column 11, line 4 through column

12, line 22 and exhibited in figures 10-13.

Regarding **claim 8**, Ferrell discloses everything claimed as applied above (see

claim 4), in addition, Ferrell discloses further comprising processing the recovered

second signal when information is detected in the first signal but not in the second

signal, as disclosed at column 4, line 16 through column 5, line15 and exhibited in figure

2.

Regarding **claim 9**, Ferrell discloses a method of canceling a far end echo from a near end signal, comprising: estimating a characteristic of at least one of a far end signal and the near end signal; and selectively canceling the echo from the near end signal, the selection of whether to cancel the echo from the near end signal being based on the estimated characteristic, as disclosed at column 4, line 16 through column 5, line15 and exhibited in figure 2.

Regarding **claim 11**, Ferrell discloses everything claimed as applied above (see claim 9), in addition, Ferrell discloses wherein the characteristic estimation comprises estimating a power level of the far end signal, and estimating an echo return loss between the far end signal and the near end signal, and wherein the echo is cancelled from the near end signal if the estimated power level of the far end signal minus the echo return loss is greater than a threshold, as disclosed at column 11, line 4 through column 12, line 22 and exhibited in figures 10-13.

Regarding **claim 12**, Ferrell discloses everything claimed as applied above (see claim 9), in addition, Ferrell discloses wherein the characteristic estimation comprises estimating a power level of the far end signal, estimating an echo return loss between the far end signal and the near end signal, and estimating a power level of the near end signal, wherein the selection of whether to cancel the echo from the near end signal is based on the estimated power levels and the estimated echo return loss, as disclosed at column 11, line 4 through column 12, line 22 and exhibited in figures 10-13.

Regarding **claim 13**, Ferrell discloses everything claimed as applied above (see claim 9), in addition, Ferrell discloses wherein the echo cancellation comprises

adaptively filtering the far end signal and subtracting the filtered far end signal from the

near end signal, as disclosed at column 4, line 16 through column 5, line15 and

exhibited in figure 2.

Regarding **claim 15**, Ferrell discloses everything claimed as applied above (see

claim 13), in addition, Ferrell discloses wherein the characteristic estimation comprises

estimating an echo return loss between the far end signal and the near end signal, and

estimating an echo return loss enhancement between the near end signal and the near

end signal without the echo, and wherein the echo is canceled by selectively adjusting

the filter adaptation as a function of the echo return loss and echo return loss

enhancement, as disclosed at column 4, line 16 through column 5, line15 and exhibited

in figure 2.

Regarding **claim 19**, Ferrell discloses everything claimed as applied above (see

claim 13), in addition, Ferrell discloses detecting information in the near end signal,

wherein the filter adaptation comprises limiting the filter adaptation when the information

is detected and the filter adaptation is converged, as disclosed at column 11, line 4

through column 12, line 22 and exhibited in figures 10-13.

Regarding **claim 21**, Ferrell discloses everything claimed as applied above (see

claim 13), in addition, Ferrell discloses wherein the filter adaptation is limited when the

filter adaptation has been active for a period longer than one second after filter

adaptation initialization, as disclosed at column 11, line 4 through column 12, line 22

and exhibited in figures 10-13.

Regarding **claim 26**, Ferrell discloses everything claimed as applied above (see claim 9), in addition, Ferrell discloses detecting information in the far end signal, detecting information in the near end signal, and non linear processing the near end signal when information is detected in the far end signal and not in the near end signal, as disclosed at column 11, line 4 through column 12, line 22 and exhibited in figures 10-13.

Regarding **claim 27**, Ferrell discloses everything claimed as applied above (see claim 9), in addition, Ferrell discloses wherein the characteristic estimation comprises estimating a power level of the far end signal, estimating a power level of the near end signal, estimating a power level of a near end signal without the echo, estimating a power level of noise on the far end signal, and selectively non linear processing the near end signal, the selection as to whether to non linear process the near end signal being based on the estimated power levels, as disclosed at column 11, line 4 through column 12, line 22 and exhibited in figures 10-13.

Regarding **claim 32**, Ferrell discloses a signal conditioner for conditioning a composite signal, the composite signal being formed by introducing at least a portion of a first signal into a second signal, comprising: a canceller to recover the second signal from the composite signal; and a bypass to selectively enable the canceller, as disclosed at column 4, line 16 through column 5, line15 and exhibited in figure 2.

Regarding **claim 35**, Ferrell discloses everything claimed as applied above (see claim 32), in addition, Ferrell discloses wherein a power estimator to estimate a maximum power level and an average power level of the first signal, and adaptation

logic to estimate a return loss between the first signal and the composite signal, wherein the bypass enables the canceller as a function of at least one of the estimated maximum power level, the estimated average power level, the estimated return loss, as disclosed at column 11, line 4 through column 12, line 22 and exhibited in figures 10-13.

Regarding **claim 37**, Ferrell discloses everything claimed as applied above (see claim 35), in addition, Ferrell discloses a second power estimator to estimate an average power level of the composite signal, wherein the adaptation logic estimates the return loss by dividing the estimated average power level of the first signal by the estimated average power level of the composite signal, as disclosed at column 11, line 4 through column 12, line 22 and exhibited in figures 10-13.

Regarding **claim 39**, Ferrell discloses everything claimed as applied above (see claim 32), in addition, Ferrell discloses wherein the canceller further comprises an adaptive filter to filter the first signal, and a combined operator to subtract the filtered first signal from the composite signal to recover the second signal, as disclosed at column 4, line 16 through column 5, line15 and exhibited in figure 2.

Regarding **claim 40**, Ferrell discloses everything claimed as applied above (see claim 39), in addition, Ferrell discloses a non linear processor, and adaptation logic which invokes the non linear processor to suppress the recovered second signal when information is detected in the first signal but not in the composite signal, as disclosed at column 11, line 4 through column 12, line 22 and exhibited in figures 10-13.

Regarding **claim 41**, Ferrell discloses everything claimed as applied above (see claim 40), in addition, Ferrell discloses wherein the information includes voice, as disclosed at column 4, line 16 through column 5, line15 and exhibited in figure 2.

Regarding **claim 43**, Ferrell discloses everything claimed as applied above (see claim 32), in addition, Ferrell discloses a filter adapter to adjust the adaptation of the adaptive filter, as disclosed at column 4, line 16 through column 5, line15 and exhibited in figure 2.

Regarding **claim 44**, Ferrell discloses everything claimed as applied above (see claim 32), in addition, Ferrell discloses adaptation logic to estimate a return loss between the first signal and the composite signal, and a return loss enhancement between the composite signal and the recovered second signal, the filter adapter adjusting the adaptation of the adaptive filter as a function of the estimated return loss and the estimated return loss enhancement, as disclosed at column 11, line 4 through column 12, line 22 and exhibited in figures 10-13.

Regarding **claim 52**, Ferrell discloses everything claimed as applied above (see claim 44), in addition, Ferrell discloses wherein the adaptation logic disables the filter adapter when the adaptation logic detects information in the composite signal and the adaptive filter is converged, as disclosed at column 11, line 4 through column 12, line 22 and exhibited in figures 10-13.

Regarding **claim 53**, Ferrell discloses everything claimed as applied above (see claim 44), in addition, Ferrell discloses wherein the information includes voice, as disclosed at column 4, line 16 through column 5, line15 and exhibited in figure 2.

Regarding **claim 54**, Ferrell discloses everything claimed as applied above (see

claim 44), in addition, Ferrell wherein the adaptation logic limits the adaptation of the

adaptive filter is converged when the adaptation of the adaptive filter has been active for

a period longer than one second after an off hook transition of a telephony device

coupled between the first signal and the composite signal, as disclosed at column 11,

line 4 through column 12, line 22 and exhibited in figures 10-13.

Regarding **claims 59-77, 79-87, 89, 93-96, 99, 101-105, 107-125, and 130-133**

they are interpreted and thus rejected for the reasons set forth above in the rejections.

Allowable Subject Matter

3.		*Claims 7, 14, 16-18, 22-25, 28-31, 36, 38, 42, 45-51, 55-58, 78, 88, 90-92, 97,*

98, 100, 106, 126-129 and 134-136 are objected to as being dependent upon a rejected

base claim, but would be allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims.

Conclusion

4.		The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

Eriksson et al. (United States Patent 6,137,882), discloses an adaptive echo

cancellation method.

Laberteaux et al. (United States Patent 6,614,907), discloses an echo canceller

employing dual-h architecture having variable adaptive gain settings.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jefferey F Harold whose telephone number is 703-306-5836. The examiner can normally be reached on Monday - Friday 9 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh H Tran can be reached on 703-305-4040. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jefferey F Harold
Examiner
Art Unit 2644

JFH
March 2, 2005